I HEREBY CERTIFY THAT ON SEPTEMBER 16, 2010, THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO: MAIL STOP APPEAL BRIEF – PATENTS, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

STEVEN W. SMYRSKI

PATENT
Atty Docket No. TFEL0001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Confirmation No.: 2026
MICHAEL DANIELS, ET AL.	Group Art Unit: 3742
Title: HEATING BLANKET	Examiner: Vinod D. Patel
Serial No.: 10/564,566	
§371 Filing Date: JANUARY 13, 2006	

REPLY BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in reply to the Examiner's Answer mailed July 19, 2010 in the above-referenced application and associated appeal.

REMARKS

The Mills reference fails to show a design "wherein ... when the first and second conductors are connected at a second end of the cable to an AC power supply *equal currents flow in opposite directions through adjacent portions of the first and second conductors...*" and the Examiner's Answer serves to underscore the absence of this element from Mills. The Examiner's Answer relies on the Quadracs disclosure in Mills, but such a circuit is inapposite – mere ability to conduct in two directions, demonstrated by Quadracs, differs from a pair of conductors that, when coupled at one end in series, have equal currents flowing in opposite directions through adjacent portions of the conductors as claimed.

1. "...equal currents flow in opposite directions..."

The core of the Examiner's Answer on the issue of "*equal currents flow in opposite directions through adjacent portions of the first and second conductors...*" appears to be that any arrangement where current can flow in opposite directions shows the limitation. This is not correct. Simply because different currents can flow in opposite directions does not mean that equal current is flowing in opposite directions through adjacent portions of conductors when connected in accordance with the requirements of claim 1. In FIG. 3 of Mills, the current flowing through the sensor wire 14' is much less than the current flowing through heating element 12'. Use of a sensor wire, discussed in the Appeal Brief as being used in previous designs, indicates that a lower current flows through the sensor wire than flows through a heating wire, and the Specification specifically distinguishes this low current "sensor wire" operation with respect to the Gerarrd reference. Current can flow through the sensor wire and heating wire of Gerrard, but not "equal currents" flowing "in opposite directions" as claimed.

It is in fact beneficial to keep sensor wire current, such as the current in the Gerrard sensor wire or the current in Mills' sensor wire 14' as low as possible to prevent the sensor wire from heating itself, thus impairing its ability to sense heat changes. This contrasts from the "equal currents flowing in opposite directions" teachings of the present

design and claims, which employs equal currents in order to heat the device and not sense heat as occurs with the Mills and Gerrard sensor wires.

Appellants further note that the precise claim limitation is that "***when*** the first and second conductors are connected at a second end of the cable to an AC power supply equal currents flow in opposite directions through adjacent portions of the first and second conductors..." Use of the word "when" here indicates that equal currents are flowing whenever the connection exists between first and second conductors – in other words, the equal currents flow in opposite directions when the first and second conductors are connected at all times. The claim does not state that equal currents "may" flow or currents might be conceivably be equal under limited circumstances – the claim says that "***when***" the first and second conductors are connected to an AC power supply as claimed, "***equal currents flow in opposite directions through adjacent portions of the first and second conductors***..."

The Examiner's Answer points to col. 4, ll. 29-37 of Mills and the Quadrac design, emphasizing that current can be conducted in either direction. Examiner's Answer, p. 4 ([the Quadrac] **conduct[s] current in either direction**, and be triggered for **conducting current in either direction**..."; emphasis in original; *see also*, Response to Argument, p. 10). Appellants do not suggest that current does not flow in both directions in the Quadrac circuit – to the contrary, Appellants contend that the Quadrac circuit and the passage identified fail to disclose or suggest that ***equal*** currents flow in opposite directions as claimed. To the extent that the Quadrac enables current to flow in both directions, the Mills implementation is that of different (nonequal) currents flowing through sensor wire 14' and heating element 12'. Again, this creates the unacceptable EMF situation recognized by the inventors and addressed by the present design.

2. first conductor/second conductor/separation layer

Appellants note a clear inconsistency in the analysis of the Mills reference with respect to the "first conductor," "second conductor," and "separation layer" limitations of the present claims. At page 4 and page 13 of the Examiner's Answer, the claimed "first

conductor" is said to be sensor wire 14 of Mills, formed from conductors 15, 16. Conductors 15 and 16 are apparently referenced to address the failure of Mills to show the claimed separation layer conforming to the language of the claim. The Examiner's Answer identifies the second conductor as Mills' heating element 12. (Examiner's Answer, p. 4 and p. 13) The Examiner's Answer finds the claimed separation layer, required by claim 1 to be "interposed between the first and second conductors", in Mills' dielectric material 17. However, dielectric material 17 is ***not interposed between the alleged first conductor (Mills' sensor wire 14) and the alleged second conductor (Mills' heating element 12)***. And if conductors 15 and 16 are considered the "first conductor" and "second conductor," between which the separation layer is interposed, they fail to adhere to other limitations – *e.g.*, "the first conductor is formed such that the *first conductor has a positive temperature characteristic...*" No such positive temperature characteristic is discussed with respect to conductors 15, 16. Also, flow of current in conductors 15 and 16 is not suggested nor identified as being "equal currents flow[ing] in opposite directions through adjacent portions of the first and second conductors" as claimed.

In sum, contrary to the assertions in the Examiner's Answer, the Mills reference fails to show the first conductor, second conductor, and separation layer according to the limitations presented in claim 1, further demonstrating the allowability of the present claims.

3. Alternating Current Discussion

Appellants note an extensive discussion at pp. 5-6 of the Examiner's Answer of alternating current. (*See also*, discussion of AC current versus DC current, Examiner's Answer, pp. 10-11). No citation is presented, but this definition was apparently taken from the Brittanica Concise Encyclopedia, and statements such as "(see periodic motion)" have no citation or discussion. Examiner's Answer, p. 5.

In any event, the reason for introducing a discussion of alternating current here is entirely unclear; Appellants acknowledge that AC current is indeed different from DC

current. This discussion is interjected between the discussion of the positive temperature characteristic ("...the first conductor is formed such that it has a positive temperature characteristic ([Mills,] column 6, lines 40-55)"; Examiner's Answer, p. 5) and the discussion of the separation layer having a negative temperature characteristic being missing from FIG. 3 of Mills (Examiner's Answer, p. 6). However, the Examiner's Answer fails to correlate the fact that AC current differs from DC current to anything in the present claims. It is as if something is being argued, but unclear exactly what is alleged.

Appellants can only guess as to what is being argued. To the extent the Examiner wanted to argue that alternating current is "equal and opposite" in accordance with the claim language, Appellants disagree. Appellants submit that should one wire employ AC current, such as the current through sensor wire 14 of Mills, and such current be considered "equal and opposite" in accordance with the claim language, such alternating current is only equal and opposite ***to itself*** (a sinusoidal wave going from +X to –X), rather than the alternating currents through sensor wire 14 and heating element 12 being *equal currents flowing in an opposite directions.* Alternating current at one level going through heating element 12 is not equal to, but in fact higher than, alternating current passing through sensor wire 14. Appellants further emphasize that the claim does not simply recite that a current is "equal and opposite," but instead that equal currents flow in opposite directions, which is very different.

Additionally, as noted above, the claim uses the term "when" to indicate that "when" the first and second conductors are connected as claimed to an AC power supply, equal current flows in opposite directions through the first and second conductors, or in other words equal and opposite current flows in opposite directions at all times through the first and second conductors when connected as claimed. Mills' illustration of two different AC currents flowing through two adjacent conductors, i.e. a high AC current and a low AC current, does not indicate equal currents flow in opposite directions when the conductors are connected to an AC power supply as claimed. The use of AC current in individual elements of Mills is of no consequence – the claim limitation ("when the

first and second conductors are connected ... to an AC power supply equal currents flow in opposite directions") is not met by the Mills AC current disclosure, and the Examiner's Answer fails to shed any light on the reasons for relying on the AC current shown in Mills.

4. "connected in series" and "NTC/PTC"

Arguments with respect to the other points made by Appellants are cursory and generally repeat passages already provided in the Examiner's Answer. The Examiner's Answer fails to disprove that Mills includes a sensor wire 14 and a heating element 12 that are not coupled together, or connected in series or in parallel, but instead are separate. The wiring from sensor wire 14 originates at element 30 and terminates at element 30 without contacting heating element 12, and vice versa. In FIG. 3 of Mills sensor wire 14' and heating element 12' are connected in parallel. Neither embodiment meets the requirement of claim 1 that the first and second conductors are "connected in series" and equal currents flow in opposite directions when connected to an AC power supply. The argument at p. 13 of the Examiner's Answer fails to disprove this and only raises inapposite passages of Mills and broadly contends that "first and second conductors are connected at a first end of the cable in series (as shown in FIGs. 2 and 3)." Examiner's Answer, p. 13. Simply saying it does not make it so. Sensor wire 14 and heating element 12 are separate; sensor wire 14' and heating element 12' are connected in parallel.

The Examiner's Answer seeks to show the NTC/PTC limitations, which are very specific, by combining the two circuits of FIGs. 2 and 3 of Mills. The precise limitation is "...wherein the separation layer is formed such that the separation layer has a negative temperature characteristic, and the first conductor is formed such that the first conductor has a positive temperature characteristic." Appellants submit that a simple substitution of elements from FIG. 2 into FIG. 3 of Mills, or even a simple combination of the teachings of FIGs. 2 and 3, would not result in a usable design having the claimed attributes without undue experimentation, if such a design would work at all. Appellants contend

that the Examiner's Answer is using hindsight to reconstruct the present claims, using Appellants; specification as a guide, and such hindsight reconstruction remains impermissible, even in view of the KSR ruling. Appellants submit that one of ordinary skill in the art seeking to address the issues identified in the present Specification, namely safety, overheating, and the EMF effect, would not have been motivated to combine these distinct embodiments together. Further, even if these circuits could somehow be combined, it would require undue experimentation by one skilled in the art to create a device as claimed having the beneficial heating and EMF attributes discussed. Thus the combination of the circuits of Mills' FIGs. 2 and 3 to produce a device as claimed is simply not feasible. Further, such a combination improperly treats the claims as a mere catalog of separate parts, wholly disregarding to part-to-part relationships set forth in the claims that give those claims meaning, and is improper.

5. Gordon Jr. and Sopory

The Examiner's Answer differs from the Final Office Action and now states that Gordon Jr. in combination with Sopory shows something, but does not specify what – or in other words, Gordon Jr. and Sopory are not correlated to the claims, but certain words and phrases from these two references are plucked out and alleged to demonstrate the unpatentability, when in actuality they, like Mills, do not satisfy the claim language. Gordon Jr. is said to disclose a sensor wire and heating wires, the sensor wire separated by an NTC material. Examiner's Answer, p. 15. According to this allegation, Gordon Jr. is no different than Mills' FIG. 2, which shows a sensor wire 14 made of conductors 15 and 16 which are separated by dielectric material 17. As with Mills, Gordon Jr. does not show what is claimed: a first conductor, second conductor, and separation layer, where the first conductor is formed such that the first conductor has a positive temperature characteristic. The mere presence of negative temperature characteristic and positive temperature characteristic etched foils in Sopory does not address this issue. The Examiner's Answer is picking and choosing words from these references in an effort to deprecate the present claims.

Accordingly, it is respectfully submitted that all pending claims fully comply with 35 U.S.C. § 103.[1]

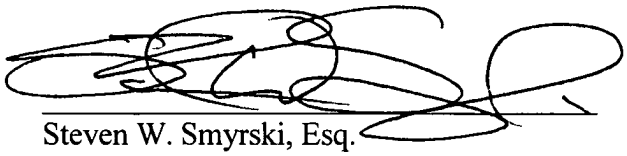
[1] Appellants note in passing that a European counterpart of the present application recently issued in Europe, after an opposition, having essentially the same claim language as employed in the present application, including the terms contested herein. *See*, EP 1645167 B2. Appellants recognize this is not determinative of the present issues, but demonstrates the patentability of similar claims as determined by another eminent patent authority.

CONCLUSION

In view of the foregoing, Appellants submit that all pending claims are patentably distinct over the prior art and are allowable. Thus the Final Office Action rejecting all pending claims is in error and should be reversed.

Appellants believe that no fees are due in accordance with this Reply Brief beyond those included herewith. Should any additional fees be due or overpayment made, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Account 502026.

Respectfully submitted,



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Steven W. Smyrski, Esq.
Registration No. 38,312

SMYRSKI LAW GROUP, A PROFESSIONAL CORPORATION
3310 Airport Avenue, SW
Santa Monica, California 90405-6118
Phone: 310.397.9118
Fax: 310.397.9158